Arsenii Ashukha

PhD Candidate at Bayesian Methods Research Group
Student Researcher Samsung AI Center Moscow
Home page Google Scholar

EDUCATION

- PhD in Computer Science, ***National Research University Higher School of Economics***, 2017 - 2021
  Topic: Applications and understanding of variational inference for modern deep learning, Advisor: Dmitry Vetrov
- MSc in Computer Science, **Moscow Institute of Physics and Technology**, 2017 (with distinction)
  Thesis: *Sparsification of DNNs probabilistic framework*, Advisors: Dmitry Vetrov and Alexey Dral
- BSc in Computer Science, **Bauman Moscow State Technical University**, 2015
  Thesis: Bigram anchor words topic modeling, Advisor: Natalia Loukachevitch

PROFESSIONAL EXPERIENCE

- Research scientist at ***Samsung AI Center Moscow*** (2018 - Now):
  Research on probabilistic deep learning, ensembles of DNNs, uncertainty estimation.
- Research scientist at ***Yandex Research*** & ***University of Amsterdam*** (2017 - 2018):
  Research on Bayesian deep learning for a group-level sparsification and uncertainty estimation.
- Research Intern at ***Lab of Deep Learning and Bayesian Methods HSE*** (2016 - 2017):
  Research on Bayesian deep learning for sparsification and incremental learning.

My responsibility included: selecting research directions, scheduling and executing research agenda, development of machine learning models and algorithms, writing papers.

Before I dive into research, I worked as a machine learning engineer at Rambler and Yandex, where I worked on a variety of industrial problems that required creating machine learning models and processing a massive amount of data. Such problems include recommendation systems, advertising systems, and music processing.

PUBLICATIONS

- **Arsenii Ashukha***, Alexander Lyzhov*, Dmitry Molchanov*, Dmitry Vetrov
  Pitfalls of In-Domain Uncertainty Estimation and Ensembling in Deep Learning, ICLR (2020).
- Kirill Neklyudov*, Dmitry Molchanov*, **Arsenii Ashukha*,** Dmitry Vetrov
  Variance Networks: When Expectation Does Not Meet Your Expectations, ICLR (2019).
- Andrei Atanov*, ***Arsenii Ashukha****, Kirill Struminsky, Dmitry Vetrov, Max Welling
  The Deep Weight Prior, ICLR (2019).
- Andrei Atanov, **Arsenii Ashukha**, Dmitry Molchanov, Kirill Neklyudov, Dmitry Vetrov,
  Uncertainty Estimation via Stochastic Batch Normalization, Workshop Track ICLR (2018).
- Kirill Neklyudov, Dmitry Molchanov, **Arsenii Ashukha**, Dmitry Vetrov
  Structured Bayesian Pruning via Log-Normal Multiplicative Noise, NeurIPS (2017).
- Dmitry Molchanov*, **Arsenii Ashukha***, Dmitry Vetrov
  Variational Dropout Sparsifies Deep Neural Networks ICML (2017).

Full list: scholar.google.com/citations?user=IU-kuP8AAAAJ. *equal contribution.

MISCELLANEOUS

- **Reviewing:**
  - Conferences:
    - International Conference on Machine Learning, ICML (2019, 2020)
    - Neural Information Processing Systems, NeurIPS 2019 (top-50% highest-scoring reviewers)
    - International Conference on Learning Representations, ICLR 2020
  - Workshops:
    - ICML Workshop on Invertible Neural Networks (2019, invertibleworkshop.github.io)
    - Bayesian Deep Learning Workshop (since 2017, bayesiandeeplearning.org)

- **Thesis (co-)supervision**:
  - Alexander Lyzhov
    - Deep Neural Network Ensembles: Analysis and Approaches to Diversification (MSc, 2020)
  - Andrei Atanov
    - Effective Learning of Deep Neural Networks Ensembles (BSc, 2018)
    - Learning Deep Models with Small Data (MSc, 2020)
  - Evgenii Nikishin (MSc, 2019)
    - Stability Improvement and Knowledge Transfer in Deep Reinforcement Learning (MSc, 2019)

- **Teaching:**
  - Supervisor of scientific seminars on machine learning at HSE and Yandex (since 2017)
  - TA at **Deep|Bayes** Summer School on Bayesian Deep Learning (since 2017), http://deepbayes.ru
  - Machine Learning at MIPT: TA (2016), Lecturer and manager (2017, 2018)

- **Open-source contributions**:
  - See https://github.com/senya-ashukha.
  - Extremely simple implementations of ML algorithms that I made just for fun:
    - Gradient boosting, https://github.com/senya-ashukha/simple-boosting
    - Density estimation using Real NVP, https://github.com/senya-ashukha/real-nvp-pytorch
    - Quantile Regression DQN, https://github.com/senya-ashukha/quantile-regression-dqn-pytorch

- **Languages and Keywords:** I'm fluent with Python which is my love, I use to code on C, Go, language is not a problem after all. I'm also fluent with common libs such as NumPy, Matplotlib, scikit-learn, etc. My primary deep learning framework at the moment is PyTorch which is my absolute love, prior to that I had a decent experience with Theano+Lagange and TensorFlow.

- **Foundations are crucial:** During my MSc degree, I learned many fundamentals of machine learning and algorithms at Yandex School of Data Analysis (YSDA) e.g., Machine Learning, Bayesian Machine Learning, Optimization in Machine Learning, Deep Learning, and Graphical Models.